



Nov. 8, 2010

Environment America, Environment Maryland, Environment Virginia, and PennEnvironment offer the following comments on the draft Total Maximum Daily Load (TMDL) for the Chesapeake Bay, in **Docket ID No. EPA-R03-OW-2010-0736**.

Environment America is a federation of 29 state based organizations with more than 100 staff and 1 million members, activists, and allies working together for a cleaner, greener, healthier future. We work on a variety of issues related to clean air, clean water and preservation of open spaces. Restoring the Chesapeake Bay has long been a priority for our staff and more than 30,000 members in the bay region. For instance, Environment Virginia has advocated for and won funding for best management practices designed to limit runoff from agriculture. In 2007 Environment Maryland was instrumental in passing Maryland's Stormwater Management Act which set a standard of no net change in the hydrology of new construction sites.

Thanks to the leadership of President Obama and U.S. Environmental Protection Agency Administrator Lisa Jackson, this Chesapeake Bay TMDL is the best chance in a generation to improve the quality of our waterways throughout the Chesapeake Bay region. The ultimate success of this historic effort will rely on the EPA's ability to hold states accountable to the clear goals laid out for them.

We offer the following recommendations to the EPA as it prepares and implements the final Chesapeake Bay TMDL due December 31, 2010.

States Must Demonstrate That Their Plans Will Achieve the TMDL's Numeric Pollution Reduction Goals. The nutrient and sediment load allocations set forth in the draft TMDL are essential for restoring the Chesapeake Bay. But assigning each state the responsibility to reduce specific amounts of pollution will not ensure that the reductions will take place. The EPA must insist that each state demonstrate that the measures set forth in its final Watershed Implementation Plan (WIP) *will* achieve the TMDL's numerical pollution reduction goals for that state.

If any state is lacking in this regard, the EPA must swiftly follow through in its plan to backstop state plans with additional load reductions. That is, if a state fails to demonstrate how it will reliably achieve pollution allocations in a particular sector, the EPA should transfer those allocations to another sector so that the state will achieve its overall assigned TMDL pollution allocations. This will be especially critical in the case of nonpoint pollution. The EPA must use the final TMDL to re-allocate nonpoint load reductions to point sources, like sewage treatment plants, whenever a state fails to demonstrate how it will achieve its required nonpoint reductions. There is no technical,

scientific, or valid policy reason why each and every state in the watershed should not have submitted a WIP that achieves the proposed pollution reductions.

States Must Adopt Effective, Mandatory Practices for Non-Point Sources. The TMDL pollution reduction levels will not be achieved without deep reductions from the non-point sectors of agribusiness and urban runoff.

Agribusiness. Industrial agribusiness is the most under-regulated source of pollution in the Bay region. The demands of companies like Tyson and Perdue generate 1 billion pounds of chicken manure in the watershed alone.¹ Common sense tells us that voluntary efforts cannot tackle pollution of this magnitude. In fact, the numbers bear out that truth. According to USDA, after 26 years of voluntary conservation programs only 19 percent of the more than 4.3 million acres of harvested crop land in the watershed is now adequately managed to control agricultural runoff.² At that rate, the mostly voluntary approach would take another 100 years just to control runoff from harvested crop land. That is not acceptable.

If this TMDL is to actually restore the Bay, then the states must commit in their WIPs to begin treating agribusiness like every other industrial source of pollution – with mandatory pollution reduction measures. For example, the EPA was right to recommend to the State of Maryland that it require cover crops.³ Now the EPA must continue on this path, insisting that all the states adopt such mandatory practices, including but not limited to these common sense steps:

- Cover crops must be planted on fields after corn is harvested or manure is applied.
- Manure must be stored in sheds or on slabs with a tarp.
- Farmers must install setbacks from streams and ditches.
- When manure or sludge is applied, it must be incorporated into the soil within 24 hours or injected.
- No manure or sludge application should be allowed from November through March.

Fertilizer Usage on Turf. Addressing nutrient over-application in urban and suburban settings that is comparable to efforts on agricultural lands is important for equity reasons and for water quality reasons. We must reduce needless fertilization of home lawns.

States should eliminate phosphorus from residential fertilizer. Home lawn fertilization constitutes one of the most important and cost-effective nutrient reduction sources. First, home lawn fertilization is not needed to promote healthy turf growth in most lawns. The existing soils are generally capable of supplying enough nutrients, particularly in the case of phosphorus. Second, studies in Minnesota and Michigan communities have shown sharp decreases in phosphorus concentrations in rivers and lakes within a year of passing a fertilizer phosphate ban.

¹ U.S. Poultry and Egg Association, Industry FAQ, downloaded from www.poultryegg.org/faq/faq.cfm, 2 September 2010. Chicken production in DE, MD and VA counts broiler chickens, per USDA National Agricultural Statistics Service, 2007 Census of Agriculture, 4 February 2009.

² *Assessment of the Effects of Conservation Practices on Cultivated Cropland in the Chesapeake Bay Watershed*, draft October 2010, Conservation Effects Assessment Project, U.S. Department of Agriculture, available online: http://www.livablefutureblog.com/wp-content/uploads/2010/10/ceap_chesapeake_bay_report.pdf

³ *EPA Comments on the Maryland Draft Phase I Watershed Implementation Plan*, October 1, 2010.

According to recent research, turf cover arguably constitutes the largest fraction of pervious area in the Chesapeake Bay watershed. The research, by the Chesapeake Stormwater Network, indicates that approximately 9.5% of the total Bay watershed area is turf cover, and approximately 75% of that is potentially devoted to home lawns. The best current estimate is that 65% of homeowners fertilize their lawns at an average rate of 87 lbs N/acre/year.⁴ In Maryland, for instance, the Chesapeake Stormwater Network estimates that 63 million pounds of nitrogen and as much as 5 million pounds of phosphorus are applied to Maryland lawns every year. While much of the nutrients are incorporated into turf biomass, research has shown a significant potential for nutrient export from lawns in the form of stormwater runoff or leaching into shallow groundwater.

Stormwater. As development continues to march across the open spaces of the Chesapeake Bay region, nutrient pollution from stormwater has been increasing. We cannot let that continue. It will take enormous effort to ensure that polluted runoff decreases at the same time that the construction industry rebounds.

One of the most important tools is Municipal Separate Storm Sewer System (MS4) permits. States issuing these permits should require that all MS4 and other stormwater permits incorporate the wasteload allocation numbers from the TMDL. Also, as MS4 permits are required of more jurisdictions and the requirements of the permits become stricter, we need to make sure there are significant consequences for failing to comply with the terms of those permits.

Give Credit for Restoring Phosphorus Balance in Soils. Many scientists are concluding that too much soil in the Chesapeake Bay watershed is “P-saturated,” i.e., saturated with phosphorus, due to years of over-application of manure. The problem is that when farmers apply even more manure to P-saturated soils, it becomes much easier for the phosphorus to flow into the groundwater or nearby streams. P-saturated soil is like a wet sponge that can no longer soak up more phosphorus. So to limit phosphorus runoff from farm fields and help restore the Chesapeake Bay, farmers should stop applying manure to P-saturated land. Farmers should therefore use a manure application test that adequately accounts for whether the soil is P-saturated.

At the same time, the EPA should incorporate soil P-saturation in its Chesapeake Bay model so that the phosphorus levels are accurate. When the EPA includes P-saturation in the model, phosphorus loads will rise due to the phosphorus already present in some soils. And then states will get credit for reducing the saturation level in soils – i.e., by restoring phosphorus balance in the soils.

But for now, as long as the EPA does *not* include P-saturation in its model, the EPA must give credit to states that take steps to restore phosphorus balance in soils. Otherwise, those steps would not result in load reductions in the EPA’s model. Therefore, these measures that would restore phosphorus balance and help restore water quality in the Chesapeake Bay would receive no credit from the EPA for reducing the phosphorus load. In the TMDL the EPA should therefore explain this problem, urge states to begin

⁴ Tom Schueler, Chesapeake Stormwater Network, “The Clipping Point: Turf Cover Estimates for the Chesapeake Bay Watershed and Management Implications,” 1 April 2010.

accounting for the phosphorus imbalance in certain soils, and give credit to states that take action to reduce P-saturation.

State Solution to P-Saturation Problem: Replace the Manure Application Test. Any state that uses the Phosphorus Site Index (P-Index) should replace it with a phosphorus saturation test (P-Sat) to determine when it is permissible to apply manure and sludge to cropland.

The P-Index was never intended to be the long-term solution for managing phosphorus, particularly in areas with intensive animal operations. The P-Index seeks to determine the areas that have the highest risk of P loss to water so that more P will not be applied in those areas. While such an objective has some value, it is inappropriate to use the index universally. All farmland has significant risk of P loss to water. The P-Index is also an overly complex formula that is easy to tweak to achieve a desired result.

Those two factors – that it is the wrong test in the first place and uses a formula that is too easy to manipulate – lead to over-application of P to crops that don't need it, causing P buildup in soils which results in loads to the bay. The state should shift to a test that is more straightforward and can be applied consistently across the state and its watersheds.

Even supporters of the P-Index acknowledge its shortcomings. SERA-17, the group of land grant university researchers who developed the P-Index, wrote a white paper on the P-Index that discussed its limitations. They specifically state that the P-Index is “unsustainable over the long term when soil test P reaches unacceptable levels across the farm.” They explain that this is particularly a problem where manure is concentrated: “In areas of intensive animal production, the long term goal must be to match manure P production with local crop P requirements, or to find alternative uses for the manures outside the farm boundary.” They stress that “the implementation of the P-Index based management only addresses short-term P loss issues. For long-term sustainability, applications of P must approach a balance with crop removal.”⁵ In other words, even if you believe that manure application is being effectively shifted to the most appropriate areas, those areas will get saturated over time and the P-Index will lead to excessive water pollution.

As evidenced by University of Maryland data, the P-Index clearly is not working. The university formerly performed soil analysis as a service for farmers and compiled the data into a master database. Analyzing that data for soil saturation of P yields startling results.

When the phosphorus saturation rate of soil is above 18%, additional P is likely to flush away with rain.⁶ Like a wet sponge, soil cannot absorb more P when it is already saturated. University of Maryland data shows that a large majority of soil samples from the four Maryland counties with the most intensive poultry production have excessive P

⁵ R.O. Maguire et al, “Phosphorus Indices to Predict Risk for Phosphorus Loss,” *Organization to Minimize Phosphorus Losses from Agriculture (SERA-17)*.

⁶ The phosphorus saturation rate is the ratio of phosphorus to other elements that are able to bind phosphorus.

saturation, ranging from 63% in Somerset County to 80% in Worcester County.⁷ (See table.)

This should come as no surprise, given the excess of manure in those counties. Comparing the amount of P that all the crops grown in a county are expected to use with the amount of P in manure produced in the county shows that there is far more manure than local crops can be expected to utilize. Excess manure is between 115 million pounds and 129 million pounds for each of the state's poultry-intensive counties, for a total of 488 million pounds. This translates into approximately 6.6 million pounds of excess phosphorus. This includes an estimate of the amount of manure transported out of the counties by the Manure Transport Program. (See table.)

County	Soil Samples with Excessive P Saturation	Excess Manure (million pounds)
Caroline	72%	115
Somerset	63%	118
Wicomico	71%	129
Worcester	80%	126

A much better alternative to the P-Index is the P Saturation Test (P-Sat), which is comparatively easy and cheap to use. The 11-page guide to calculating the P-Index is complicated and confusing. Farmers need to hire consultants to perform the calculation. The P-Sat, in contrast, can be derived from soil tests that are already performed. Farmers are currently required to perform soil tests as part of their Nutrient Management Plans. Those same test results could include a P-Sat calculation.

A manure application policy based on P-Sat would be straightforward. If P-Sat is above a certain level, more manure or sludge cannot be applied. Many experts are recommending a threshold of 20%, and the U.S. EPA used that level in its recently issued "502 Guidance."

The state should also prohibit application of manure and sludge to soils that are highly erodible or otherwise hydrologically unsuitable.

Enforce the TMDL and the WIPs. In a number of documents the EPA has described certain enforcement actions it could take if states do not meet the goals of the TMDL or their own WIPs. The EPA took its first enforcement step by threatening a federal backstop for states that do not adequately demonstrate how they will achieve the TMDL pollution reduction numbers. The backstop is simply the EPA's means of ensuring those reductions occur, by shifting around some of the allocations within a state. The EPA

⁷ All phosphorus saturation data and excess manure data is from: Caitlin Kovzelove, Tom Simpson, and Ron Korcak, "Quantification and Implications of Surplus Phosphorus and Manure in Major Animal Production Regions of Maryland, Pennsylvania, and Virginia," February 2010.

should follow through on this threat, if necessary, with the release of the final TMDL in December 2010. Furthermore, the EPA should remain committed to using any enforcement action at its disposal to make sure the TMDL is successful. For instance, the EPA should also be ready to object to permits for new dischargers if states have not sufficiently reduced pollution from current sources.

Enforcement

Enforcement of our water pollution laws should be improved by increasing maximum fine levels, doing more audits, and providing more information to the public about the inspections and audits that are done. Higher fines are needed, mostly as a deterrent. For instance, in Maryland, when the standard fine for violating Nutrient Management Plans is \$300, it is cheaper for a farmer to avoid performing measures in the plan and pay a fine than to follow the law.

The state also needs more inspections to assure compliance and should make more information from those inspections public. Researchers and policy advocates need to make sure they are focused on the most important problems. Lack of adequate information creates a risk that advocates will assume the worst and not be coordinated in their efforts to build support for the best solutions. More information helps ensure that everyone is working together effectively.

The only way to reliably enforce how agribusinesses and farmers handle their animal manure is to establish cradle-to-grave tracking of that manure. With industrial chicken alone, we have a 1 billion pound pollution problem. It's hard to imagine how any restriction on manure application could be enforced unless agribusiness operators are required to show what happened to every ton of manure that comes into their possession. For instance, suppose a chicken operation produces 10 tons of manure. The operation should have to account for the whereabouts and usages of all 10 tons. If they say 5 tons went to a particular farmer, then that farmer has to disclose what she did with the 5 tons. If she claims she didn't apply it to her fields—in violation of P-sat results, let's say—then she must explain what she did with it.

Thank you for your attention to these comments on the draft Chesapeake Bay TMDL. We look forward to working with you on effective implementation of the TMDL and state WIPs.

Federal staff can contact Tommy Landers at Environment Maryland regarding these comments at 410-467-0439.

Sincerely,

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